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BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C.

5 1993

FCC - MAIL ROOM

IN THE MATTER OF:	)	
	)	
AMENDMENT OF THE COMMISSION'S	)	
RULES TO ESTABLISH A SINGLE AM	)	ET DOCKET NO. 92-298
RADIO STEREOPHONIC TRANSMITTING	)	
EQUIPMENT STANDARD	)	

TO: THE COMMISSION

COMMENTS OF

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3. Before selecting a Stereo-AM system, we should take a look at existing transmission specifications, with a view of revising and tightening them to reflect present-day ability of technology to reach better figures. Also, we should specify new parameters so that a Stereo-AM service would provide very good performance. Specifications should include items such as differential phase and gain, and a requirement that the transmitted audio characteristic of the left and right channels be substantially identical. Appendix A lists some desirable goals.

4. Another step to take at the same time is establishment of reasonable receiver standards for sets selling to the United States market. We have seen car radios with extreme limitations on the audio bandwidth. This was a reaction to over-emphasis of high frequencies by some stations, creating adjacent-channel interference. That audio limitation made the AM service an inferior service to the listener. Thus, much reduced audience. Even though many AM stations transmit good sound, it can not be heard on most car radios. Stereo-AM needs reasonable receiver standards. Appendix B shows several that are attainable even with modest-priced sets.

5. Part of the Stereo-AM package should include equal protection of the sidebands, as related to the carrier. In our work, we measure what the carrier does in relation to other carriers, and we document that. That work is important, but it is the information carried by the carrier which is what AM is all about, and that information is in the sidebands, not the carrier. This is why I call for equal protection of the sidebands. And that information should extend out to more than 5 kHz. This comment calls for protection to 8 kHz or more.

6. To accomplish that we need to go to a single sideband AM service, with carrier, somewhat like that used for television picture transmission. With 10 kHz channel spacing, and the modified (vestigial) sideband held to 1 kHz width, or less, a system could transmit a protected audio bandwidth of 8 kHz or slightly more. And this signal could be reproduced by a receiver. There would be no need to use a narrow channel width in the receiver, except in low signal areas. An automatic receiver circuit could do this. Exhibit I shows the present transmission, and the proposed one.

7. Whatever system is approved should be compatible with existing radio sets for satisfactory monaural performance.

8. The Commission has noted that 591 stations are employing the Motorola Stereo-AM system. Of the AM stations on the airwaves, that represents about 12% of United States AM broadcasters. It appears that the other 88% should be heard from before making a locked-in decision.

9. Although it is outside the present proceeding, it may be to this

10. This proceeding by the Commission should be based on, first of all, sound technical merits, and then legal merits. It is understandable that the Congress wants a system, but to approve a system which fails to incorporate state-of-the-art transmission and reception parameters would be to continue the 2nd class status of AM stations. Stereo alone is not enough. The AM service is not attracting any new listeners, and is losing older listeners. Adding Stereo-AM, without also protecting the sidebands, tightening the transmission standards and setting receiver standards, would not give AM the boost it needs. We can do better.

APPENDIX A

Proposed Goals for Transmission Standards

A. Compatible Single Sideband Transmission.
B. Flat Audio Bandpass to about 8 kHz, with a roll-off above 8 kHz or 8.5 kHz.
C. Harmonic Distortion of the Transmitter/Antenna not to exceed 0.1% at any audio modulating frequency from 50 Hz - 8.0 kHz at 95% modulation.
D. Frequency Response limits +/- 1.0 db, 50 Hz - 8.0 kHz, referenced to 1.0 kHz.
E. No negative audio peak limiting to develop assymetrical modulation.
F. Maximum Carrier Shift of 0.2% at any audio modulating level from 100% to 125%, positive modulation.
G. Stereo Separation to be 60 db or more, from 100 Hz - 5.0 kHz.
H. Frequency Response Differential Gain between Left and Right Channels of 0.5 db or less, 50 Hz - 8.0 kHz, referenced to equality at 1.0 kHz.
I. Differential Phase, from main console Auxiliary/Line Input to Antenna not to exceed +/- 5 , from 1.0 - 5.0 kHz, and not to exceed 0.5 , from 50 Hz - 1.0 kHz. Reference to be 1.0 kHz.

The Standards would be phased in over a period of 5 to 10 years.

APPENDIX B

Proposed Goals for Receiver Standards

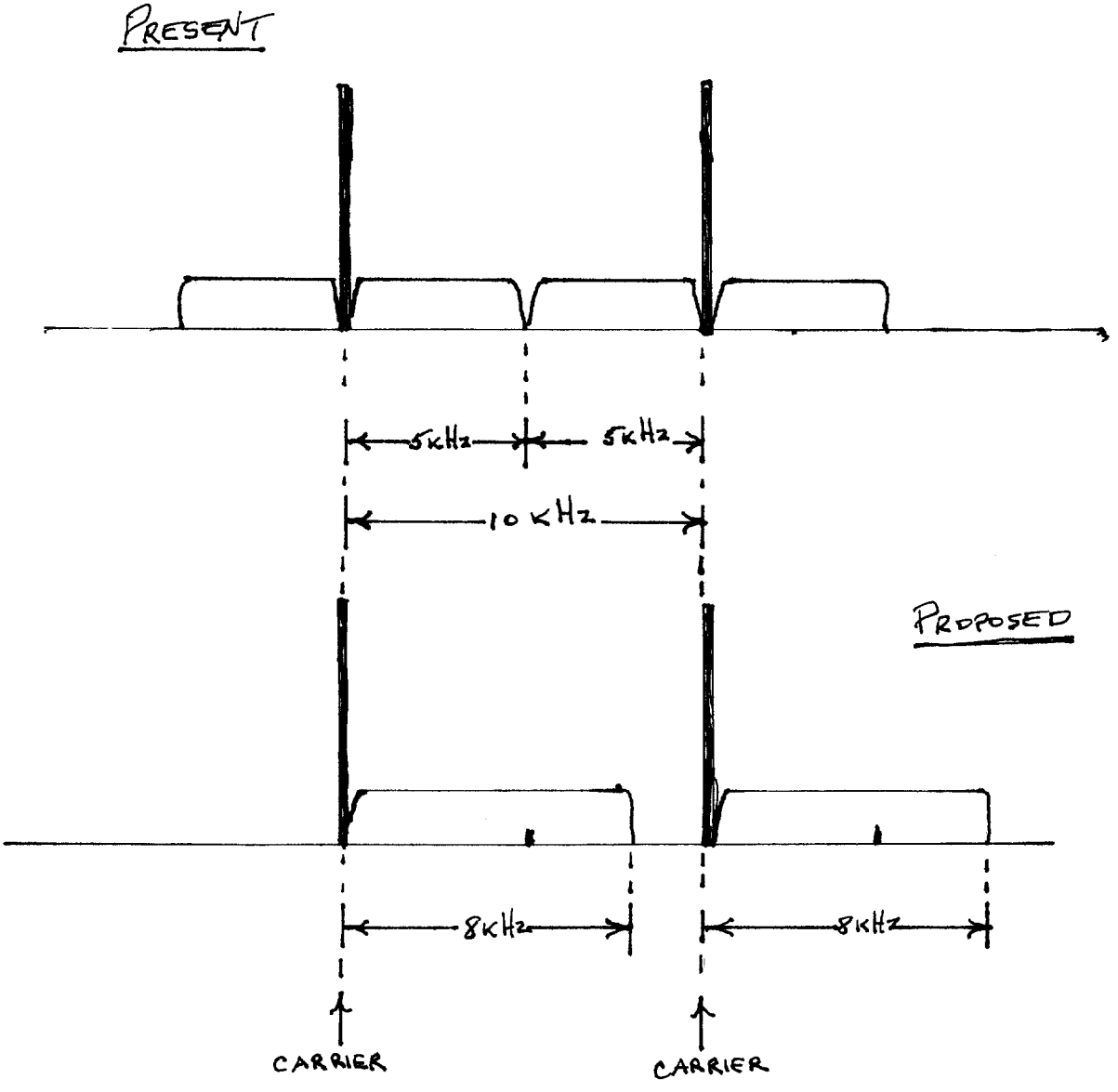
A. Low Distortion Detector with 1.0% maximum harmonic distortion at the 0.5 mv contour.
B. Flat Audio Amplifier Response from detector output to speaker input, allowing for equalization to overcome items such as cabinet resonance, +/- 1.0 db, 100 Hz - 5.0 kHz.
C. Audio Amplifier Harmonic Distortion of less than 1.0%, 100 Hz - 8.0 kHz, at rated output.
D. Provision on sets for listener to select wide band, narrow band or a signal-directed bandpass.

EXHIBIT I

IMPROVING SIDEBAND PROTECTION

Upper display shows real bandpass, as of today, unprotected even to 5 kHz when the adjacent channel station transmits signals above 5 kHz.

Compare with the lower display, showing complete protection out to 8 kHz--a very good audio bandpass.



APPENDIX C

Background of James Dorrence

1. Broadcast Technologist, was employed as Operator, Remote Technician, Transmitter Manufacturing Test Technician and Chief Engineer at several TV, AM and FM stations, including stations in Pennsylvania, New York and Connecticut.

2. Served in field measurement work.

3. Member, Society of Broadcast Engineers. Participated in matters at Chapters 1 and 18. Also attended meetings at Chapters 2 and 22.

4. Have maintained a lifelong interest in sound pick-up, transmission and reproduction.

Before the
Federal Communications Commission
Washington, D. C.

In the matter of	)	
	)	
Amendment of the Commission's	)	
Rules to Establish a Single AM	)	ET Docket No. 92-298
Radio Stereophonic Transmitting	)	
Equipment Standard	)	

To: THE COMMISSION

COMMENTS OF JAMES DORRENCE

This comment is that it is premature to select any Stereo-AM system until the following are accomplished:

(a) Setting new AM transmission system standards which incorporate more parameters and tighten existing parameters,
(b) Setting receiver standards,
(c) Changing the allowed spectrum of AM stations to fully protect the sideband,
(d) Accomplishing (c) by adopting compatible single sideband transmission,
(e) Determining which system(s) can meet the above, and
(f) Considering going to 9 kHz channel spacing.

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1. We should, first, pay our respects to all the Stereo-AM pioneers who struggled with the several systems, going back to about 1962. They all merit our appreciation. Also, members and observers of the proceedings of the National A M Stereo Radio Committee. A SALUTE to all of them.

2. This comment calls for the Commission to, not only approve a Stereo-Wave AM Broadcast Band, and reach for the limits of what can be done now, in 1993 possibilities, with available audio sources such as Compact Discs (CD), Digital Audio Tape (DAT) and high quality audio from land microwave equipment and satellites. That is, to establish a state-of-the-art Stereo-AM system. To do so would make the AM service, in most ways, superior to present day stereo on FM. This is our challenge.